

REMARKS

Favorable reconsideration of this application as presently amended and in light of the following discussion is respectfully requested.

Claims 1-21 are presently active in this case, Claims 1, 15, and 20 having been amended by way of the present Amendment. Care has been taken such that no new matter has been entered. The Applicants respectfully request the entry of the amendments set forth herein.

In the outstanding Official Action, Claims 1-17, 20, and 21 were rejected under 35 U.S.C. 103(a) as being unpatentable over Swars (U.S. Patent No. 5,447,385) in view of Fujii et al. (U.S. Patent No. 5,987,973). Claims 18 and 19 were rejected under 35 U.S.C. 103(a) as being unpatentable over Swars in view of Fujii et al. and further in view of Cooper (U.S. Patent No. 4,512,441). For the reasons discussed below, the Applicants request the withdrawal of the obviousness rejections.

The basic requirements for establishing a *prima facie* case of obviousness as set forth in MPEP 2143 include (1) there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings, (2) there must be a reasonable expectation of success, and (3) the reference (or references when combined) must teach or suggest all of the claim limitations. The Applicants submit that a *prima facie* case of obviousness cannot be established in the present case because (1) the references, either when taken singularly or in combination, do not teach or suggest all of the claim limitations, and

(2) there is no suggestion or motivation to modify the references to arrive at the presently claimed invention.

Claims 1 and 20 of the present application recite a camshaft comprising a support shaft carrying in a region of one end thereof a camshaft element for co-rotation therewith, where the support shaft is configured to capture the camshaft element thereon by a head of a rivet formed of a plastically deformed portion of the end of the support shaft that extends radially outward beyond a sidewall defining an opening in the camshaft element through which the end of the support shaft is configured to be disposed. Claim 15 recites a method of producing a camshaft for an engine, the method including (a) providing a support shaft having an end portion adapted to support a camshaft element, (b) providing on said end portion a camshaft element for co-rotation with said support shaft, and (c) capturing said camshaft element onto said support shaft by plastically deforming a deformation zone of said end portion into a radially extending rivet head that extends radially outward beyond a sidewall defining an opening in the camshaft element through which the end of the support shaft is configured to be disposed. The Applicants submit that the Swars and Fujii et al. references, either when taken singularly or in combination, do not teach or suggest all of the above claim limitations.

The Swars reference is cited for the teaching of a support shaft that includes a head of a rivet formed from plastic deformation of the support shaft. However, the Swars reference does not disclose such a head of a rivet. The Swars reference describes the connection of a design element to a hollow shaft that it is slid onto the hollow shaft which is hydraulically

expanded and thereby plastically deformed. The Swars reference does not disclose a structure that can be read on the limitation of “a head of a rivet.”

The Swars reference also fails to disclose a head of a rivet formed *at the end* of the support shaft, as recited in the claim. The deformation described in the Swars reference is not at the end of the hollow shaft (2), and, in fact, it is unclear whether hydraulic expansion as described in the Swars reference can be used to deform an end of the hollow shaft.

Furthermore, the Swars reference fails to disclose a head of a rivet that extends radially outward beyond a sidewall defining an opening in the camshaft element through which the end of the support shaft is configured to be disposed, as recited in the claims. The plastically deformed portion of the hollow shaft (2) in the Swars reference does not extend radially outward beyond the sidewall defining the opening in the design element (1). In fact, the deformed portion of the hollow shaft (2) is depicted as being deformed to a location that is inward of the sidewall of the opening of the design element (1), as the depictions show a gap between the outer surface of the hollow shaft (2) and the sidewall of the opening of the design element (1).

The Applicants submit that the Fujii et al. reference does not supplement the deficiencies in the teachings of the Swars reference noted above.

The Fujii et al. reference is cited for the teaching of camshafts (6i, 6e), respective thrust control members (32i, 32e), and bolts (35, 35). The bolts (35, 35) are threadedly engaged to ends of the camshafts (6i, 6e).

The bolts (35, 35) are being cited for the teaching of a head of a rivet, as recited in the claims of the present application. However, the Applicants note that the bolts (35, 35) are not

formed from part of the camshafts, but rather they are separate features that are threadedly engaged to the camshafts. The bolts (35, 35) are thus not a rivet, as claimed. The bolts (35, 35) are clearly not formed of a plastically deformed portion of the camshafts. The Official Action suggests that one of ordinary skill in the art would have been motivated to form the structure of the bolts (35, 35) using the methods taught in the Swars et al. reference. However, there is not teaching in either reference of a motivation to do so, and in fact, as discussed above, it is unclear whether hydraulic expansion as described in the Swars reference can be used to form a structure similar to the bolts (35, 35) in the Fujii et al. reference, since it is unclear whether such a hydraulic expansion method can be used at the end of the camshaft due to the difficulties in creating the hydraulic pressure needed when working on the end of the shaft.

Thus, the Fujii et al. reference fails to disclose a head of a rivet formed at the end of the camshaft. The Fujii et al. reference does not disclose any such feature formed from a plastically deformed portion at the end of a shaft, as recited in the claims of the present application. Furthermore, the Fujii et al. reference fails to disclose a head of a rivet that is formed from a plastically deformed portion that extends radially outward beyond a sidewall defining an opening in the camshaft element through which the end of the support shaft is configured to be disposed, as recited in the claims. To the contrary, the Fujii et al. describes the use of a separate feature (i.e. bolt 35) that is threadedly engaged to an end of the camshaft, which is clearly distinct from the claimed features of the present invention.

Thus, the Applicants respectfully submit that the rejection is based on the improper application of hindsight considerations. It is well settled that it is impermissible simply to

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engage in hindsight reconstruction of the claimed invention, using Applicant's structure as a template and selecting elements from the references to fill in the gaps.

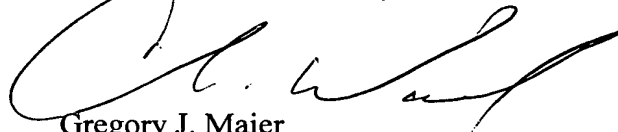
Accordingly, the Applicants submit that a *prima facie* case of obviousness has not been established with respect to independent Claims 1, 15, and 20. Thus, the Applicants respectfully request the withdrawal of the obviousness rejection of Claims 1, 15, and 20.

The dependent claims are considered allowable for the reasons advanced for the independent claim from which they depend. These claims are further considered allowable as they recite other features of the invention that are neither disclosed nor suggested by the applied references when those features are considered within the context of their respective independent claim.

Consequently, in view of the above discussion, it is respectfully submitted that the present application is in condition for formal allowance and an early and favorable reconsideration of this application is therefore requested.

Respectfully Submitted,

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